



DISTILLERS GRAINS TECHNOLOGY COUNCIL

*"Increasing the awareness of the value of
Distillers Grains"*



20th Annual Distillers Grains Symposium – Symposium Overview –

Kurt A. Rosentrater, Ph.D.

Executive Director & CEO

Distillers Grains Technology Council

www.distillersgrains.org

Welcome!

- 20th Anniversary Symposium!
- How many...?

Outline

- Distillers Grains Technology Council
- Historical perspectives
- Coproducts in 2016
- Challenges and opportunities
- 2016 Symposium Overview

Distillers Grains Technology Council

Member-driven organization

www.distillersgrains.org



DISTILLERS GRAINS TECHNOLOGY COUNCIL

"Increasing the awareness of the value of Distillers Grains"



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Welcome to the Distillers Grains Technology Council



We are here to provide educational and technical services to organizations and individuals who are interested in producing and using distillers grains.

Thank you to our Full Members who provide support to the organization throughout the year.



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Interstate Commodities, Inc.

Phibro
Ethanol Performance Group

1792
Ridgmont Reserve

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What Do We Do?

- **Our Mission**

The goals of our organization encompass a broad interest in current issues affecting the beverage, fuel, and livestock industries

- **Service Support**

To provide educational and technical services to member producers and users of distillers grains

- **Advocacy**

To be the principle voice on nutrition, safety, and regulatory issues affecting distillers grains

- **Market Development**

To encourage, administer, and support research and promotion into new and existing market opportunities for distillers grains, and advancing the awareness of coproduct value

What Do We Do?

- Yearly symposium
- Other conferences & trade shows
- Educational papers & publications
- FDA / AAFCO / GIPSA
 - Meetings
 - Written comments on proposed Federal Regulations
- Provide support to
 - Fuel ethanol companies
 - Beverage companies
 - Livestock producers
- Weekly information/news feed to FULL MEMBERS
- Quarterly Board meetings
- Literature library since late 1800s

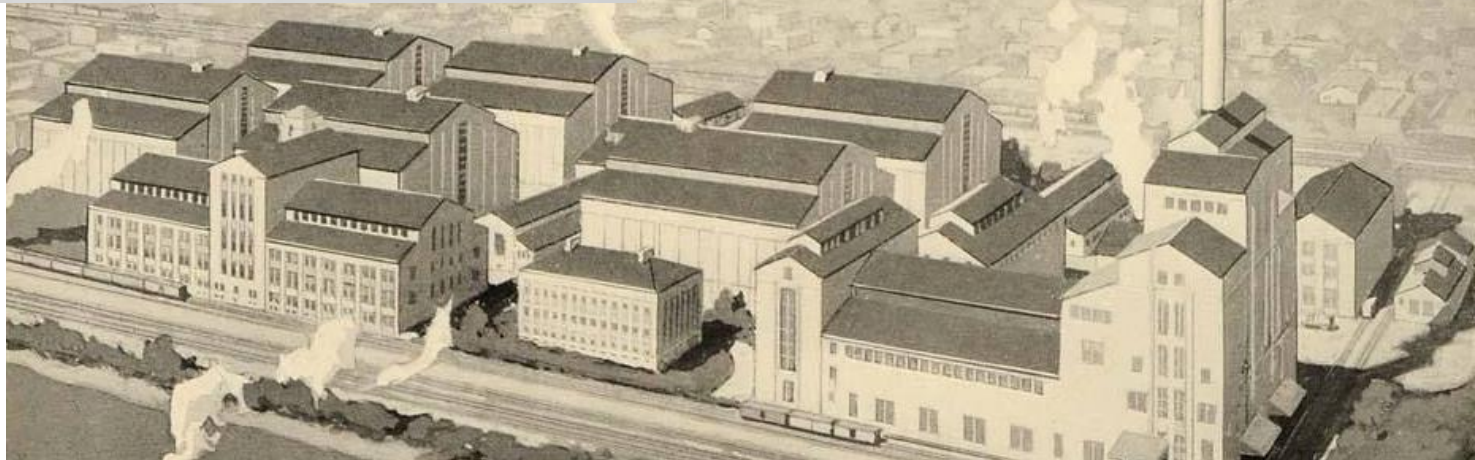


Historical Perspectives

Seagram's



Hiram Walker & Sons



DGTC has worked with beverage, fuel, and livestock industries for 70 years (began in 1945)

Distillers Grains Technology Council

- Late 1800s

- Distillers coproducts increasingly used in animal feeds (not rivers anymore) due to state environmental regulations

- 1913

- First AAFCO definition for DDGS
- Exports to Europe occurring

Prohibition:

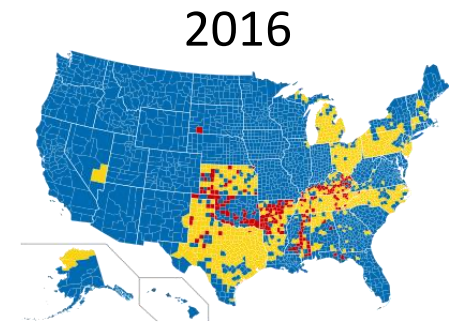
1920: 18th Amendment

1933: 21st Amendment

1966: all states fully repealed

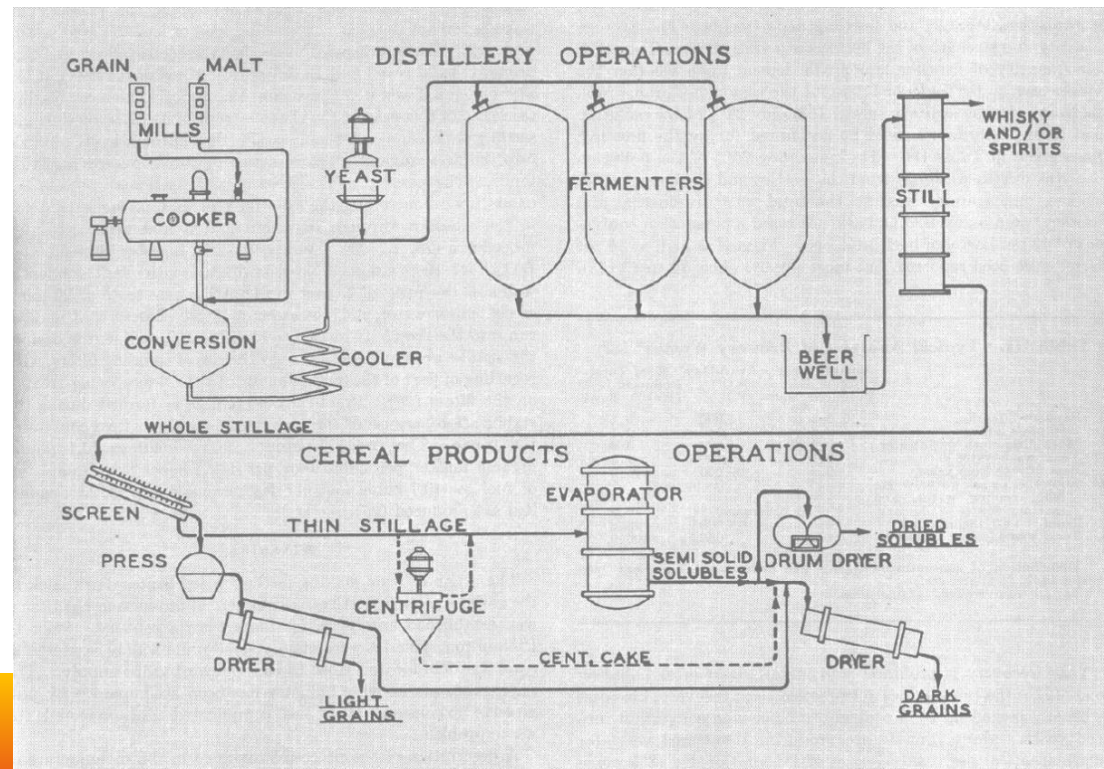
- 1945

- Seagram's Distillers Corporation hosted a meeting of industry, university and government attendees to discuss feed uses of distillery coproducts
- Distillers Feed Research Council founded
 - Cincinnati, OH
 - Feeding trials, research, annual symposium



Distillers Grains in Animal Feeds

- “Grain distillers have developed equipment and an attractive market for their recovered grains” (Boruff, 1947)
- “Distillers are recovering, drying, and marketing their destarched grain stillage as distillers dried grains and dried solubles” (Boruff, 1952)



Distillers Grains Technology Council



Distillers Feed Research Council Meeting,
March 15, 1951, Cincinnati, OH



Distillers Feed Research Council Meeting,
January 24, 1950, Cincinnati, OH



Coproducts in 2016

Fermentation Products

Theoretical Yields

1 kg glucose = 0.51 kg ethanol
+ 0.49 kg carbon dioxide

Practical Yields

90 – 95% of theoretical
+ yeast cell mass
+ secondary products

Anecdotaly:

1 lb corn =
1/3 lb ethanol
+ 1/3 lb CO₂
+ 1/3 lb DDGS

1 bu corn =
2.8 gal ethanol
+ 18 lb CO₂
+ 17 lb DDGS

Evolving Processes



Now:

1 bu corn =

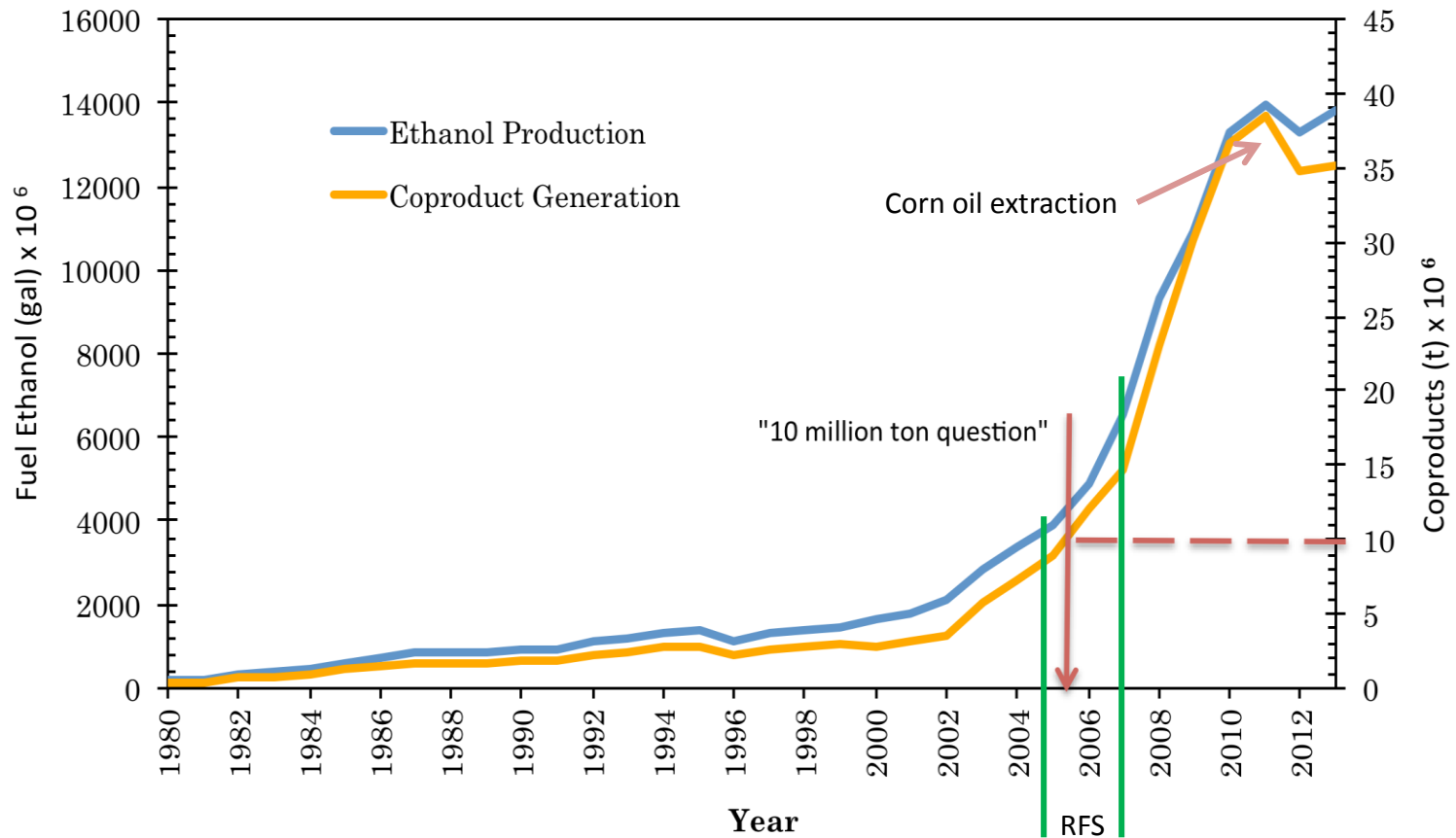
2.8 gal ethanol

+ 18 lb CO₂

+ 16 lb DDGS + 1 lb oil



Fuel Ethanol Growth



Growth of U.S. fuel ethanol industry



A typical corn ethanol fuel plant

Annually:

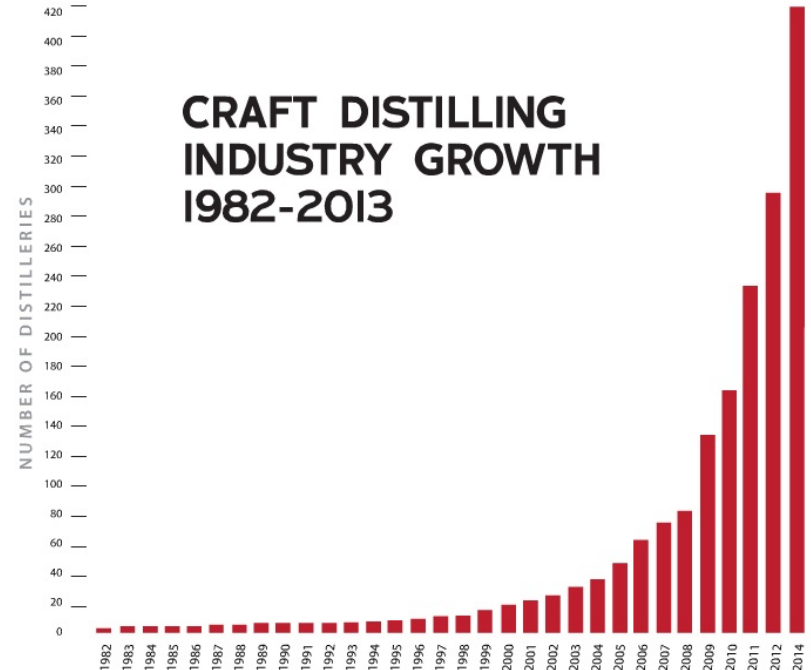
- 47 million bushels of corn
- 130 million gallons of denatured ethanol
- 480,000 tons of coproducts

2016

Distilled Spirits Growth



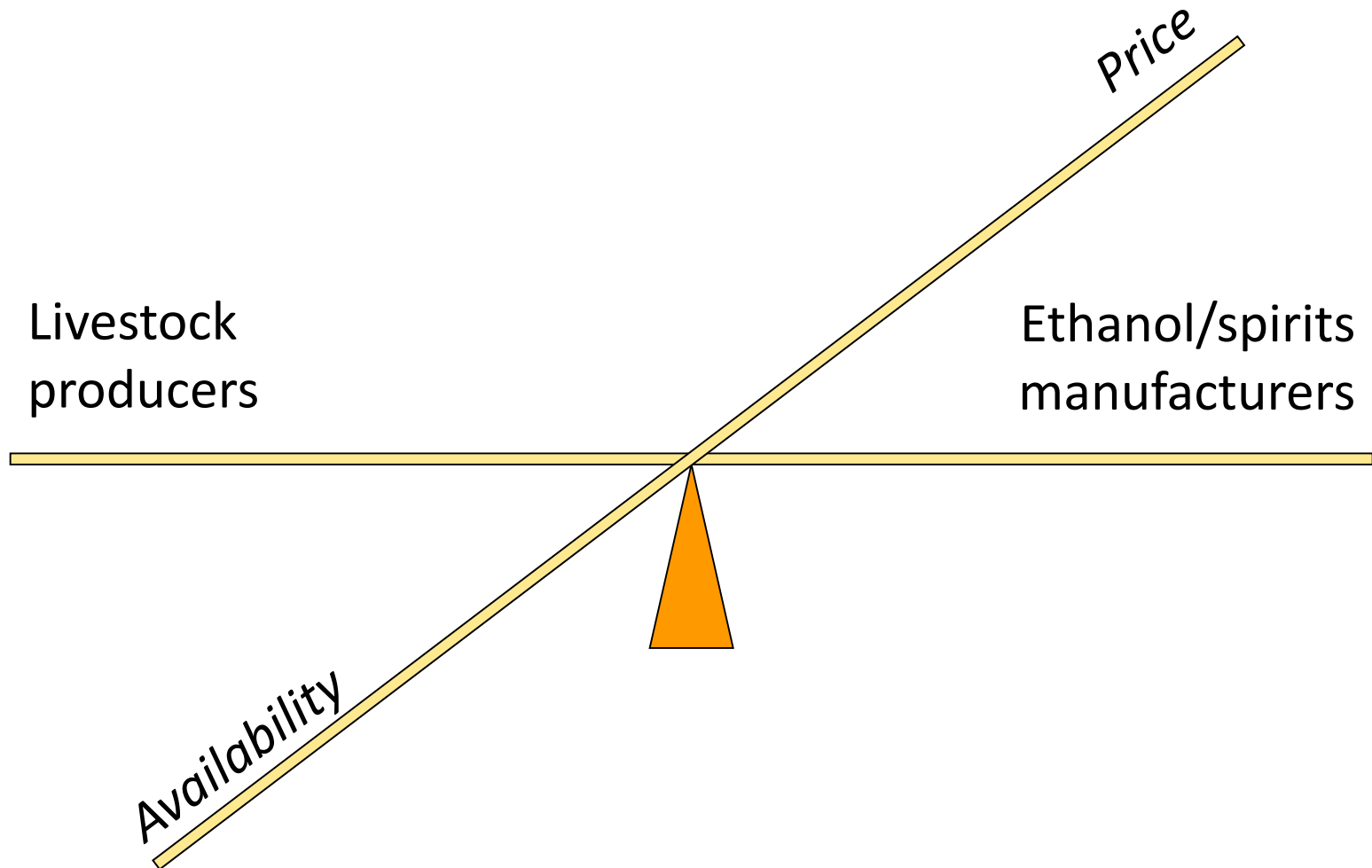
CRAFT DISTILLING INDUSTRY GROWTH 1982-2013



1825 craft distilleries in U.S. as of April 2016 (ADI, 2016)



DDGS Quality & Value





Challenges and Opportunities

DDGS – Some Key Issues

2005

- “Mountains of distillers grains”
- Livestock feed
 - Current generation products
 - Next generation products
 - Processed feeds
 - New species
- Standardized grading system
- Sulfur / phosphorous
- Mycotoxin contamination
- Energy consumption / cost
- Optimizing quality w/ ethanol



- Consistency / variability
- Transportation
 - Domestic
 - International
 - Flowability
- Other value-added uses
 - Human foods
 - Industrial products

DDGS – Some Key Issues

2016

- Livestock feed
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 - Next generation products
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DDGS – Some Key Issues

2016

- FSMA (Food Safety and Modernization Act)
 - Production practices & safety
- Effects of nutrient evolution on livestock performance
- Are we capturing the TRUE VALUE from distillers grains?
 - Proteins
 - Fibers
 - Nutraceuticals
- We will learn about these and other issues
 - Industry leaders will address

2016 Symposium

- Wide array of topics
 - Markets, economics, domestic, exports
 - Beef, dairy, swine, poultry
 - Processing (upstream and downstream)
 - Regulatory issues
 - Networking opportunities
 - Breaks
 - Lunches
 - Large reception tonight
 - Exhibitors
 - Scholarship winners

2016 Symposium

PROGRAM AGENDA

20th Annual Distillers Grains Symposium

Tuesday, May 17

- 11:30 a.m. Golf Outing, tee time
7:00-11:00 p.m. Hospitality Suite, Exhibits and Early Registration

Wednesday, May 18

- 7:00-8:00 a.m. Registration/Buffer Breakfast
8:00-8:15 Symposium Welcome
Dr. Lance Forster, President, Distillers Grains Technology Council (DGTC)
8:15-8:30 Symposium Overview
Dr. Kurt Rosentrater, Executive Director, DGTC
8:30-10:00 Markets for Distillers Grains in 2016
Mr. Michael Peterson, U.S. Commodities
New Generation Distillers Grains: X, Y, or Millennials?
Dr. Alvaro Garcia, South Dakota State University
C5 Platform for Co-Products from DDG
Mr. David Timmons, Brown Forman Corporation
Dr. Satyavolu, Dr. Michael Nantz and Dr. Christopher Burns, University of Louisville
10:00 - 10:15 Break
10:15 - 11:30 DDGS Value Improvement with Enzymes – In Ethanol Plants and Beyond
Dr. Milan Hruby, DuPont Industrial Biosciences
Understanding Laboratory Methods for Analysis of Distillers Grains for Quality Control in Production and Trade
Ms. Angela Carlson, SGS
11:30-12:15 p.m. Graduate Student Scholarship Presentations
12:15-1:30 Lunch & Exhibits
1:30-2:45 Market Trends for Distillers Grains
Mr. Wes Swift, Platts
Recent Advances in Beef Nutrition
Dr. Alfredo Dicostanzo, University of Minnesota
New Processing Technologies for Ethanol Plants
Mr. Pete Moss, Cereal Process Technologies
2:45-3:00 Break
3:00-5:00 Increasing DDGS Nutritional Value with Beer Well Enzymes
Dr. Ernie Pierson, Direvo

Market Forces Affecting Distillers Grains
Dr. Chad Hart, Iowa State University

New Product Panel

Backset – Hidden Value

Mr. Mike Locascio, Renewable Fuels Consulting

New Antimicrobials for the Ethanol Industry

Mr. Eric Sumner, Anitox

Partnering with Ethanol Producers to Develop Process Aids Enabling Higher Quality and Value Feed Products

Ms. Jennifer Bailey, Solenis

Antimicrobials that Can Address Both Gram Negative and Gram Positive Bacteria

Mr. Allen Ziegler, Hydrite

Improving the Nutritional Value of DDGS Using Novel Enzymes in the First Generation Process

Dr. Mads Pedersen, Novozymes

New Chemistries for the Ethanol Industry

Mr. Cam Fowler, Phibro Ethanol Performance

5:00 – 8:00

Cocktail Party, Open Bar and Hors D'oeuvres
Networking Reception and Exhibits

8:00 – 11:00

Hospitality Suite & Exhibits

Thursday, May 19

- 7:00-8:00 a.m. Buffet Breakfast
8:00-10:00 Trends and Technologies
Dr. Harold Tilstra, Purina Animal Nutrition
Impacts of Distillers Grains on Cheese Quality
Dr. Stephanie Clark, Iowa State University
New Processing Technologies for Ethanol Plants
Dr. Jeremy Javers, ICM
10:00-10:15 Break
10:15-12:15 Operational Advances and Environmental Impacts
Dr. Dennis Bayrock, Phibro Ethanol Performance
New Products from Corn Oil
Mr. Joe Riley, Riley Resource Group
FDA Regulation of Animal Food from the Ethanol Industries
Dr. Marla Keller, FDA Center for Veterinary Medicine
12:15-12:30 Symposium Wrap-up
Dr. Kurt Rosentrater, Executive Director, DGTC
12:30-12:45 First Meeting of Coproducts Safety Working Group
12:30-1:30 Lunch and Exhibits — End of Symposium

2016 Symposium

- Housekeeping items
 - Please silence your cell phones
 - Rest room locations
 - Internet availability
 - Trade show / meals
 - Emergency evacuation
 - Speakers, please stay on time

Consider becoming a DGTC member:

- Application forms available at registration desk
- www.distillersgrains.org



Thank you!
Enjoy the Symposium!





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